

## **A new genus (Araneae: Amaurobioidea) from Australia with a rainforest species and a relict species from limestone caves**

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**A new genus (Araneae: Amaurobioidea) from Australia with a rainforest species and a relict species from limestone caves.** - Descriptions are given of two species of a new amaurobioid spider, *Wabarra* gen.n., from very different habitats – high altitude rainforest and limestone caves in a dry eucalypt area. The relictual distribution in the caves affirms the wider continental distribution of rainforest in Queensland in earlier times. SEM micrographs show that the ♂ of the species scanned lacks cribellar spigots although it retains the calamistrum. The spider is regarded as *incertae sedis* in the Amaurobioidea.

**Key-words:** Araneae - Amaurobioidea - Australia - new taxa.

### INTRODUCTION

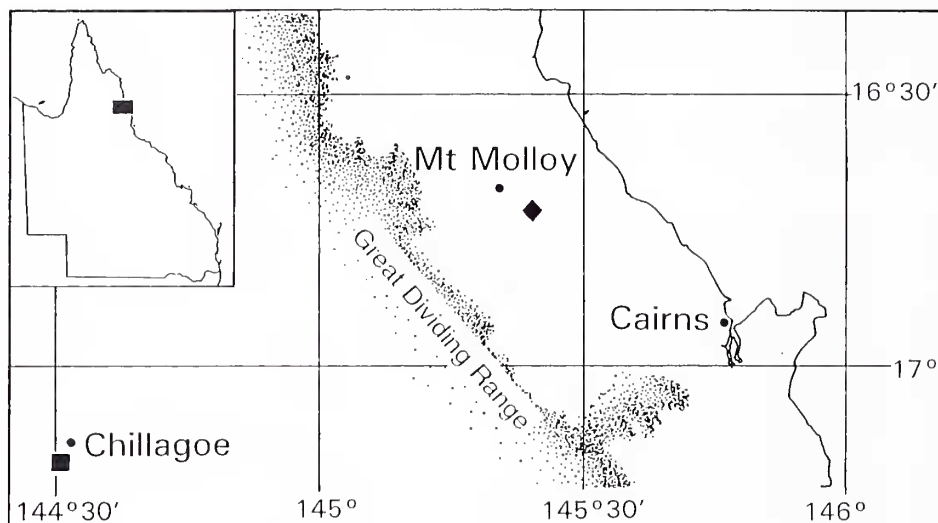
This paper is one of a series (DAVIES 1993, 1995 *a, b, c*) dealing with amaurobioids from Queensland. None has slotted into a recognised family and I am at present reluctant to create new families until more genera are known. A small rainforest litter spider is described from an area south of Mt Molloy, north Queensland; a second larger troglobitic species, easily recognisable as congeneric, is described from limestone caves about 100 km SW of the rainforest site (Map 1). The caves were formed 5–10 million years ago and are now in a dry savannah area with eucalypts, in which small patches of vine forest survive round the entrances to the caves. It is usually accepted that the rainforests are the major ancestral source of the sclerophyll flora which characterises the Australian continent today. Pollen analysis suggests that the rainforests have contracted since the mid-Eocene largely as a result of reduced precipitation and increased environmental variability (KERSHAW *et al.* 1991). The contraction of rainforest has left behind tiny relictual pockets where animals can survive if conditions of food and moisture are met e.g. in these limestone caves (HOWARTH 1988).

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MAP 1  
Distribution of *Wabarra* spp. n. Inset: map of Queensland.



## MATERIALS AND METHODS

All material is lodged in the Queensland Museum (QM). Measurements are in millimetres. Abbreviations are the same as those in DAVIES (1995 *a, b, c*). Notation of spines follows PLATNICK & SHADAB (1975).

## SYSTEMATICS

### *Wabarra* gen. n.

**Etymology:** From "wabarr", the Aboriginal word for "shade" in the Kuku Yulanji language of northeastern Queensland.

**Gender:** feminine.

**Diagnosis:** Three-clawed cribellate. Straw coloured carapace; pale abdomen without pattern. AME reduced. Feathery hairs present (Fig. 16). Chelicerae with 2 retromarginal and 5–7 promarginal teeth. Palpal femur of ♂ with enlarged spines dorsally (Fig. 11). Reduced tibial apophysis. Long, flat coiled conductor with embolus in groove (Fig. 21); without median apophysis.

**Type species:** *Wabarra pallida*, from the Latin "*pallidus*", pale.

**Description:** Viewed from the top, posterior eye row straight, anterior row recurved. Clypeus x 3 AME. Labium wider than long, sternum a little longer than wide. Long prolateral filamentous seta at base of fang (Fig. 17). Medial slit-like epigynal fossa (Fig. 19). Trochanters un-notched or slightly notched. Row of tarsal

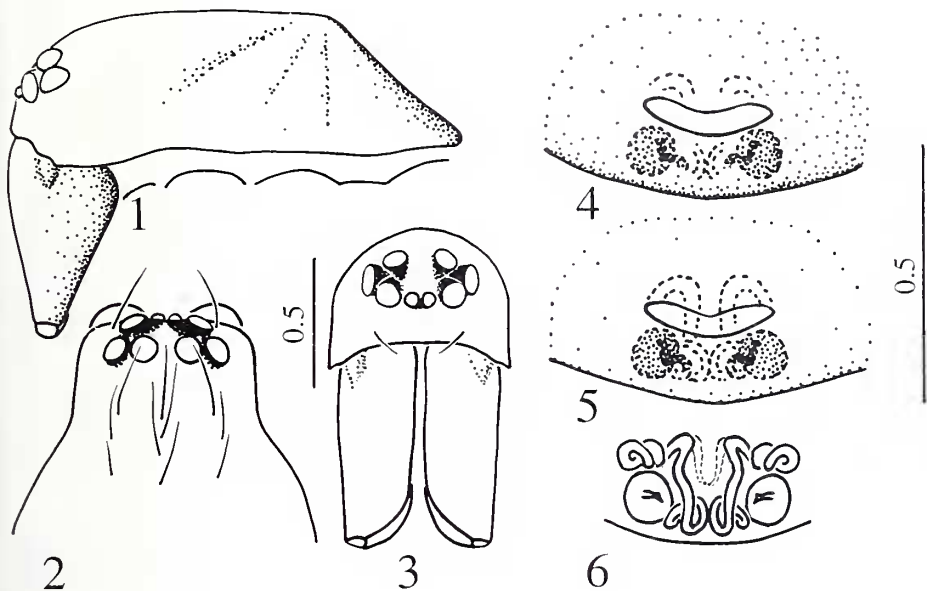
trichobothria, bothria collariform (Fig. 14); tarsal organ almost circular (Fig. 15). Two cribellar fields. Tracheal system simple with 4 unbranched tubes in the abdomen.

***Wabarra pallida* sp. n.**

(Figs 1–6, 14–31)

**MATERIAL EXAMINED:** Holotype: ♀, Spear Creek, SE of Mt Molloy, north Queensland, 16°42'S, 145°24'E, in litter, 3–10. xi. 1975, R.J. Raven, V.E. Davies, QMS22827. Paratypes: same data as holotype, ♂, QMS22828; 2 ♀, QMS22829; 17 ♂, 15 ♀, litter and pitfall traps, QMS22831.

**Diagnosis:** ♀ insemination duct with 2 coils anterior to epigynal fossa (fig. 6). Nine stout spines on ♂ palpal femur (Fig. 20).



FIGS 1–6

♀ *Wabarra pallida* sp. n. 1–3: cephalothorax, lateral, dorsal, frontal; 4–6: epigynum, ventral, ventral (cleared), dorsal.

**DESCRIPTION:**

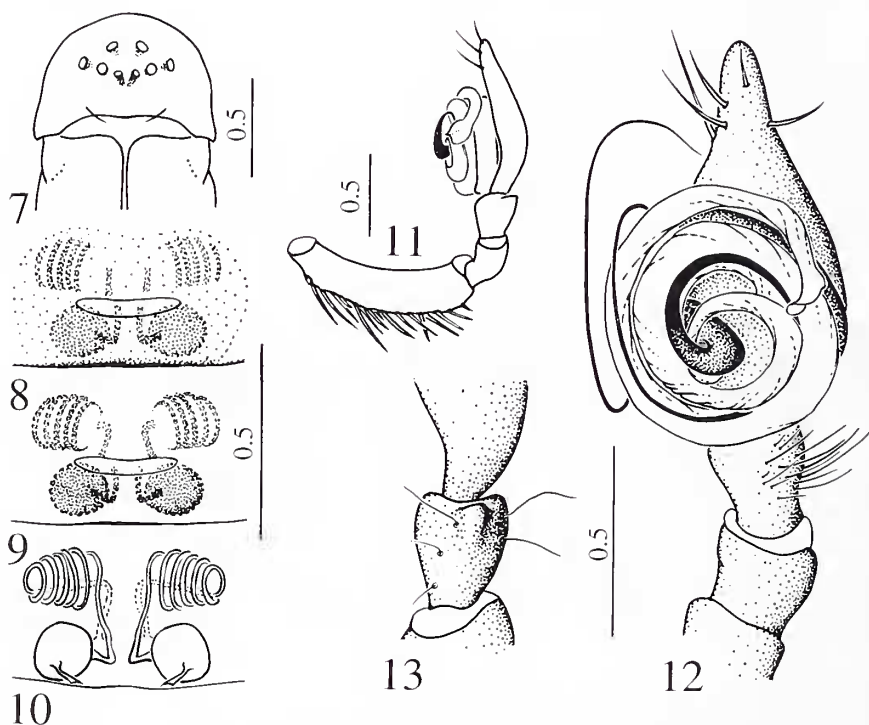
Female: CL 1.4, CW 1.0, AL 1.8, AW 1.2. Ratio of AME: ALE: PME: PLE is 4:9:9:9 (Figs. 1–3). Cheliceral swelling (? gland) present (Fig. 18). Legs 1=423 (Table 1).

Notation of spines. Femora: palp, D011; I, D100, P010; II, D100; III, D100; IV, D100. Patellae: palp, D001; 1–III, D001. Tibiae: palp, D100, P100, 1, V020; II,

P001; III, D001, P101, R011; IV, D101, P011, R011. Metatarsi: I, V011; II, V023; III, P102, V021, R102; IV, P012, V121, R012. Tarsi: palp, spined.

Labium width: length is 1:0.6. Sternum length: width is 1:0.9, pointed posteriorly.

Calamistrum in proximal half of metatarsus IV. Cribellum with well-separated spinning fields (Fig. 23). ALS (Fig. 25) with 2 major ampullate spigots, one larger than other, at least eleven piriform spigots. PMS (Figs 27, 29) with a large anterior spigot (? cylindrical), a large posterior spigot (? minor ampullate) and about 8 smaller spigots. PLS (Fig. 30) with about 10 aciniform spigots. Epigynum (Figs. 4–6), with long insemination duct with 2 anterior coils and a loose coil before entering spherical spermatheca.



FIGS 7–13

*Wabarra caverna* sp. n. 7–10: ♀, 7, eyes, frontal; 8–10: epigynum, ventral, ventral (cleared), dorsal. 11, 12: ♂ palp (embolus displaced); 13: ♂ tibial apophysis.

Females varied in length from 2.6–3.3.

Males: CL 1.3, CW 1.0, AI 1.4, AW 1.0. Eyes similar to ♀. Legs 4123 (Table 1). Leg spines more numerous than in female. Notation of spines. Femora: palp, D333; I, D111; II, D112; III, D112; IV, D102. Patellae: palp, D101; III, IV D101. Tibiae: I, P001, V020, R001; II, P011, V020, R001; III, D100, P011, V110, R011; IV D100, P011, V110, R011. Metatarsi spined with distal whorl of 4–5 spines; sparse

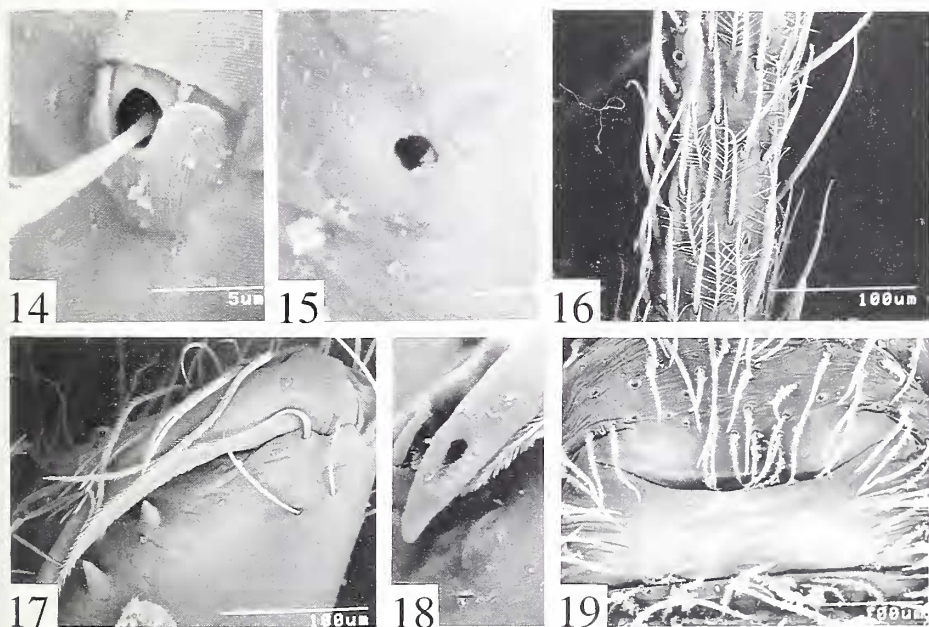
calamistrum on metatarsus IV. Colulus (Fig. 24). ALS (Fig. 26) similar to ♀ with two major ampullate spigots and about 11 piriform spigots. PMS (Fig. 28) with about 9 spigots. PLS (Fig. 31) with about 10 aciniform spigots. ♂ palp: 9 stout dorsal spines on palpal femur (Fig. 20). Embolus in groove of conductor; both arising medio-ventrally on tegulum and describing 2 1/2 flat coils; conductor flared distally (Figs 21, 22). Tibial apophysis, a small dorso-retrolateral projection.

**Wabarra caverna** sp. n.

(Figs 7–13)

MATERIAL EXAMINED: Holotype: ♀, Chillagoe Caves, north Queensland, "Bug Heaven" Chamber in Leafy Tree Cave, 17°09'S, 144°31'E, 12.i.1990, G.B. Monteith, QMS18902. Paratypes: same data as holotype, ♂, QMS22832; ♀, 4 juvs, QMS22833; ♀, New Southlander/Queenslander, Chillagoe Caves, 19.vii.1982, Explorers Club Expedition, QMS22834; ♀, juv. Ch. 10, Markham Cave, Chillagoe, 24.vii.1982, Explorers Cave Expedition, QMS22835.

Etymology: From the Latin "*caverna*", cave.



FIGS 14–19

♀ *Wabarra pallida* sp. n. 14, trichobothrium; 15, tarsal organ; 16, metatarsus IV with calamistrum and feathery hairs; 17, chelicera; 18, cheliceral swelling under tip of fang; 19, epigynum.

Diagnosis: Insemination duct with 5 coils anterior to epigynal fossa (Fig. 10). More than 30 spines on ♂ palpal femur (Fig. 11). Ventral scopulae on ♂ femora I, II. Larger spider than *W. pallida*.

#### DESCRIPTION

Female: CL 1.8, CW 1.3, AL 2.5, AW 1.4. Straw coloured carapace; cream coloured abdomen. Ratio of AME: ALE: PME: PLE is 4:8:8:9 (Fig. 7). Chelicera with 2 retromarginal and 5 promarginal teeth. Labium wider than long, 1:0.8. Sternum longer than wide, 1:0.8. Legs 1423 (Table 1). Notation of spines. Femora: palp, D014; I, D110, P012, R001; II, D110, P001; III, D110, P001, R011; IV, D1(2)00, P001, R001. Patellae: palp, D101; II–IV, D101. Tibiae: palp, D011, P100; I, D100, P001, V020; II, D100, P001, V020; III, D101, P011, V110, R011; IV, D101, P011, V110, R011. Metatarsi spined with distal whorl of 4–5. Tarsi: palp spined. Proximal calamistrum on metatarsus IV. Epigynum (Figs 8–10). Insemination duct with 5 coils anterior to fossa before passing back to spermatheca.

Lengths of paratypes 3.5 and 5.8.

TABLE I  
Palp and Leg Measurements of *Wabarra* spp. n.

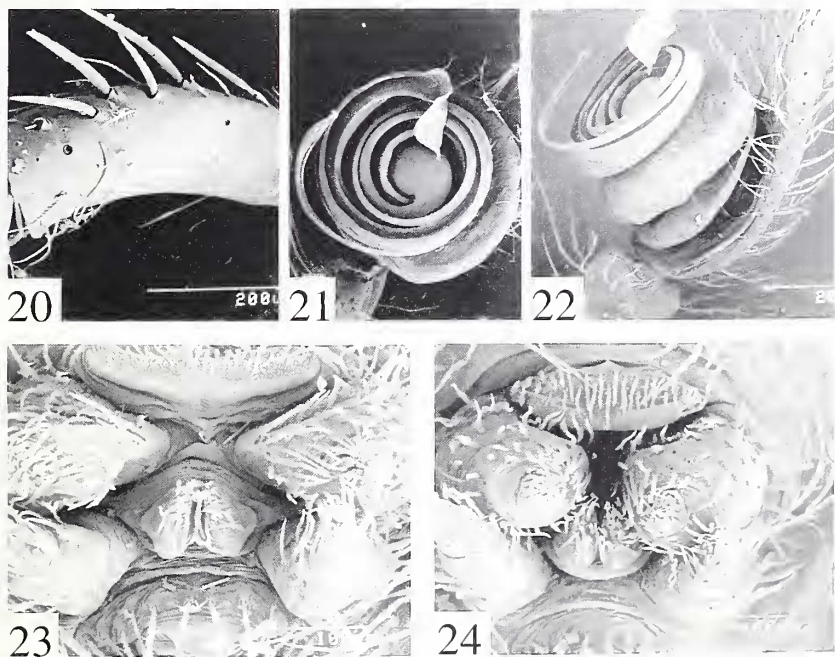
<i>W. pallida</i>		Femur	Pat. & Tibia	Metatarsus	Tarsus	TOTAL
♀						
palp		0.8	0.5	—	0.6	1.9
I		1.4	1.7	1.0	0.8	4.9
II		1.2	1.4	0.9	0.7	4.2
III		1.0	1.2	0.6	0.6	3.4
IV		1.4	1.6	1.2	0.7	4.9
♂						
palp		0.8	0.4	—	0.7	1.9
I		1.4	1.8	1.3	0.8	5.3
II		1.3	1.5	1.0	0.7	4.5
III		1.1	1.3	1.0	0.6	4.0
IV		1.5	1.8	1.5	0.7	5.5
<i>W. caverna</i>						
♀						
palp		1.0	0.9	—	0.7	2.6
I		2.4	3.0	2.0	1.3	8.7
II		2.1	2.4	1.8	1.2	7.5
III		1.8	2.1	1.7	1.0	6.6
IV		2.4	2.6	2.4	1.2	8.6
♂						
palp		1.2	0.6	—	1.0	2.8
I		2.5	3.1	2.2	1.3	9.1
II		2.3	2.7	2.0	1.2	8.2
III		1.9	2.3	1.9	1.0	7.1
IV		2.4	3.1	2.7	1.3	9.5



Male: CL 1.9, CW 1.5, AL 2.2, AW 1.5, Dark straw coloured carapace and legs I, II, rest of body pale and unpatterned. Eyes, labium, sternum similar to ♀. Chelicera with 2 retromarginal and 5 promarginal teeth. Legs 4123 (Table 1). Sparse scopula of longish setae on ventral femora I, II, thinning distally. Notation of spines. Femora: palp, D6, 12, 14 stout spines, P022 stout spines; I, D110, P021, R001; II, D110, P011, R001; III, D110, P011, R101; IV, D111, P001, R011. Patellae: I-IV, D001. Tibiae: I, P011, V220, R001; II, P011, V110, R011; III, D100, P011 V110, R101; IV, D100, P011, V110, R101. Metatarsi: spined with whorl distally. Proximal calamistrum present on metatarsus IV. ♂ palp: femur with 32 stout dorsal and 4 prolateral spines (Fig. 11); embolus in groove of conductor which describes 2 1/2 flat coils (Fig. 12); conductor slightly flared distally. Tibial apophysis, a small dorso-retrolateral projection (Fig. 13).

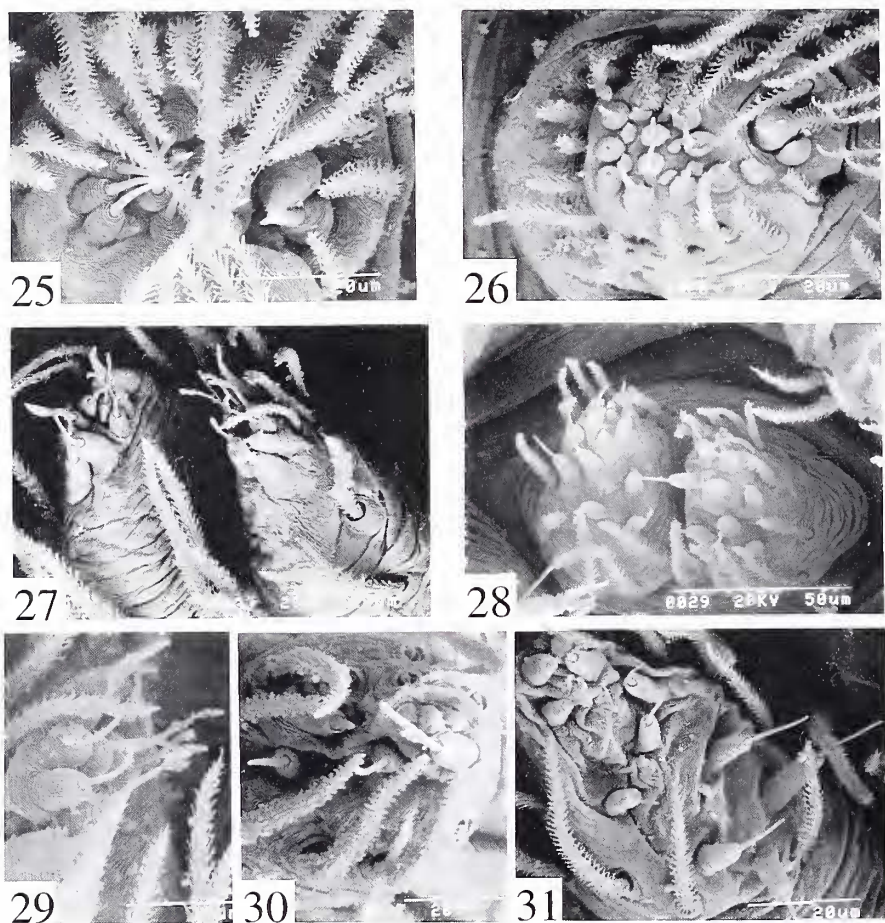
## DISCUSSION

Compared with *W. pallida* the eyes of *caverna* are proportionally similar but relatively about half the size of the former, presumably an adaptation to the cave habitat. The lighter colour of the abdomen in the cave spider is concordant with that found in some other cave-dwelling arthropods. The scopula on femora I, II in ♂ *W. caverna* may assist in holding prey and/or the ♀ during mating.



FIGS 20-24

*Wabarra pallida* sp. n. 20, ♂ palpal femur; 21, 22, ♂ palp ventral, retrolateral; 23, ♀ spinning field with cribellum; 24, ♂ spinning field with colulus.



Figs 25-31

*Wabarra pallida* sp. n. Spinnerets, 25, 27, 29, 30: ♀ ALS, PMS, PMS (r), PLS; 26, 28, 31: ♂, ALS, PMS, PLS.

The ♂ of both species retains the calamistrum although the cribellar area in *W. pallida* and probably in *W. caverna*, bears no spigots. It has usually been assumed that the calamistrum and cribellar spigots disappear together. Such is the shape of the colulus in many of the Australian amaurobioids that without SEM examination they would be regarded as having functional cribella.

The flat, coiled embolus of the ♂ palpal bulb and the internal epigynum of *Wabarra* have some structural similarities to the New Zealand spider, *Neolana* Forster & Wilton, 1973, the sole representative of the Neolanidae. However, *Neolana* (FORSTER & WILTON, 1973, figs 955-958) differs from *Wabarra* in the following



ways: it has 3 prolateral cheliceral teeth, a median apophysis, a bipartite tibial apophysis and a small rounded conductor. *Neolana* lacks feathery hairs and the stout spines on the ♂ palpal femur; the ♀ external epigynum has a rounded shallow fossa, quite unlike the transverse slit of *Wabarra*. For these reasons, I consider *Wabarra* is not a neolanid and regard it as *incertae sedis* in the Amaurobioidea.

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